

# Space News Roundup

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No. 37

## Endeavour gathers fall season data

*Endeavour* was scheduled for launch at 6:16 a.m. CDT today carrying the Space Radar Laboratory into orbit again to study changes in the Earth's global environment.

Commander Mike Baker, Pilot Terry Wilcutt, Payload Commander Tom Jones, and Mission Specialists Jeff Wisoff, Dan Bursch and Steve Smith—arrived at Kennedy Space Center on Tuesday ready for their second launch attempt.

Using a complement of instruments in *Endeavour's* payload bay, the crew members will measure changes in the environment since the first SRL flight in April. Jones, who flew on that first mission, looks forward to observing and sharing that new information with ground-based researchers.

**STS-68**



**ENDEAVOUR**

"The world is a very busy place right now," Jones said on his arrival in Florida. "We have seen floods in the Indian subcontinent, a volcanic eruption in New Guinea, and severe drought in Australia. We're anxious to get up there and contribute our part to these studies on our Mission to Planet Earth."

Today's liftoff follows *Endeavour's* Aug. 18 launch pad abort, the fifth pad abort in the shuttle program. During that launch attempt, *Endeavour's* main engines cut off 1.9 seconds before launch due to high temperature readings in oxygen flowing from the No. 3 engine high pressure oxidizer turbopump.

That engine was removed and shipped to Stennis Space Center for testing, which confirmed that although the temperatures were higher than anticipated and above the limits, there was no generic engine problem. With the three main engines originally slated for *Atlantis* installed on *Endeavour*, a go was given for today's launch attempt.

SRL-2 will provide scientists from around the world with a second opportunity to study how the Earth's global environment is changing from a unique vantage point 120 nautical miles above the planet's surface, this time during a different season.

The SRL payload is comprised of the Spaceborne Imaging Radar-C/X-Band Synthetic Aperture Radar.

Please see **MAPS**, Page 4



NASA Photo

The Space Shuttle *Endeavour* is prepared for a second launch attempt from its Kennedy Space Center pad. The launch window opened at 6:16 a.m. CDT today.

## Director creates facility manager system at JSC

JSC Director Dr. Carolyn Huntoon this week approved another effort to improve safety at the center, one that assigns a facility manager to every building.

"The objective is to assure that every JSC building has a single, well-trained individual responsible for certain factors that could affect the safety of the building, its contents, and most importantly, its occupants," Huntoon wrote in a JSC Announcement. "Safety is a top priority at JSC, and all of us need to be involved in making this center a safe place to work."

Facility managers are NASA employees appointed by their directorate managers. For multiorganizational buildings, the facility manager will be agreed upon by the managers of the organizations that occupy the buildings.

In multistory buildings or buildings with multiple laboratories, the facility manager will be helped by floor fire wardens and test operations managers.

Center Operations Director Jim Hickmon said the facility manager system is part of the new aggressive safety management program that grew out of a centerwide review of safety policies and procedures that

showed opportunities for improvement. One of those opportunities was to make sure that management is involved in the health, safety and environmental issues of all facilities, he said.

"In the past if you went into a facility you couldn't find one individual who was totally knowledgeable of all the health, safety and environmental issues. That was definitely a shortcoming, so the executive safety committee set out to fix it."

COD will maintain an accurate list of the facility managers and coordinate any changes.

Facility managers' key responsibilities will be to:

- Coordinate all safety-related building activities with line managers, fire wardens and test operations managers;
- Stop any building activity deemed to be unsafe or for which proper safety precautions are not in place;
- Serve as chief fire warden for the building;
- Develop and publish facility-unique safety and emergency action procedures;
- Ensure that mishaps are promptly reported, investigated and corrective actions taken;

Please see **NEW**, Page 4

## Hubble uncovers quasar in Earth's backyard

Discovery stuns astronomers; provides first opportunity for detailed study

Astronomers using NASA's Hubble Space Telescope have found a new quasar—not billions of light years away like its known cousins, but a mere 600 million light years, the equivalent of Earth's cosmic backyard.

"I was stunned when we realized we had a quasar; it was a total surprise," said Dr. Anne Kinney of the Space Telescope Science Institute. Until this discovery all known quasars existed in the early universe. "So it is unusual to find one in our own epoch," Kinney said.

The discovery in galaxy Cygnus A will give astronomers their first opportunity for detailed study of a quasar, an object which looks like a pinpoint of light (as does a star) to a ground-

based telescope. A quasar, though, emits hundreds of times more energy than an entire galaxy with more than 100 billion stars.

There is evidence that the quasars—short for "quasi-stellar radio sources"—found in the remote galaxies are powered by super massive black holes that devour dust, gas and stars from the host galaxies, producing enormous amounts of energy in the process. Beyond that, little is known about them, which makes this discovery so important.

Kinney emphasized that this unexpected result implies that all radio galaxies might harbor quasars that are hidden from view.

The observations were made by Robert Antonucci and Todd Hurt of the University of California at Santa Barbara, and Kinney.

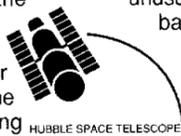
Though Cygnus A is categorized as an elliptical galaxy, it has an unusual peanut shape due to a dark band of dust encircling the enigmatic nucleus. The Hubble astronomers could only peek into the core by taking advantage of a natural "periscope effect." Dust outside the nucleus acts as a mirror to reflect the shorter wavelengths, or blue component, of the light toward Earth.

The astronomers used the ultraviolet sensitivity of the Faint Object Spectrograph to look for the spectral signature of extremely hot, super-

massive stars hidden in the nucleus, theorized as a possible explanation for the powerful optical emissions.

Instead, the resulting ultraviolet spectrum was so unusual that astronomers puzzled over the data for three months before reaching their startling conclusion. After much analysis, they realized it was in part composed of a typical quasar spectrum, with broad emission lines that indicate gas in the nucleus is swirling at high speeds.

Kinney emphasized that it is probably more than coincidence to find a quasar embedded in the nearest extremely powerful radio galaxy to Earth. These results suggest that quasars might be common to radio galaxies and might explain their powerful radio emissions, she added.



HUBBLE SPACE TELESCOPE

## STS-64 crew rejoins rest of 'winning team'

After a successful mission that ran the gamut from Earth sciences research to an untethered space walk, the STS-64 crew of *Discovery* returned home to friends, family and coworkers last week.

"There's nothing better than being part of a winning team, and a winning team sure was the team that put together STS-64," said Commander Dick Richards.

"The whole reason for the success of STS-64 was the people on the ground, and largely, I just sat there and was the band

leader for these five people behind me," he told well-wishers at Ellington Field. "They did all the work and they get all the credit."

Pilot Blaine Hammond, who along with Mission Specialist Mark Lee took some ribbing from other crew members for the amount of food they consumed, said the crew appreciated the two additional days in space—the first earned through

power conservation and the second due to unfavorable landing. Please see **STS-64**, Page 4

**STS-64**



**DISCOVERY**



JSC Photo by Mark Sowa

STS-64 Pilot Blaine Hammond signs souvenirs following last Wednesday's homecoming ceremonies at Ellington Field.

## Shuttle spends night in Houston

JSC employees will get a chance to see *Columbia* as the fleet's oldest orbiter stops overnight Saturday at Ellington Field.

*Columbia*, atop its Boeing 747 Shuttle Carrier Aircraft, should arrive at the NASA hangar at the north end of the airfield about 2 p.m. Saturday, weather permitting. The orbiter is en route to Rockwell's shuttle processing facility in California for a year-long maintenance period.

Once parked, the public will be allowed to view *Columbia* and the 747 from about 100 feet until 7 p.m. Departure for California is set for 8 a.m. Sunday.

Weather could delay the arrival or change the flight path entirely. For the most current information, call the Employee Information Service at x36765.

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# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For additional information, call x35350 or x30990.

**Renaissance Festival:** Festival runs from first weekend in October to second weekend in November. Cost is \$10.50 adults; \$5.25 child (7-12).

**Renaissance Festival Bus Trip:** Oct. 15 & Oct. 29. Cost is \$17 adult; \$5 child (5-12 years). Price includes admission and transportation.

**Deep Sea Fishing:** Boat leaves Pier 19 in Galveston at 6:45 a.m. Cost is \$40 fishing; \$20 riding; and \$20 child.

**Clear Lake Symphony:** Season pass on sale through Oct. 14. Cost is \$20 adults; \$12 seniors and full-time students.

**Ballet Folklorico:** Ballet Folklorico performs Oct. 14 at the Opera House in Galveston. Tickets on sale through Oct. 14. Cost is \$20.

**Air Show:** Tickets on sale for Oct. 15 & 16 Wings Over Texas Air Show. Cost for 1-day admission is \$7.35 adults, \$2.10 child.

**Seaworld of Texas:** Discount tickets: adult \$20.95; child (3-11), \$14.25.

**Fiesta Texas:** Discount tickets: adult \$18.95; child (4-11) and seniors (55+), \$14.25.

**Astroworld:** Discount tickets: adult \$13.75.

**Moody Gardens:** Discount tickets for two of three different attractions: \$9.50

**Space Center Houston:** Discount tickets: adult, \$8.75; child (3-11), \$7.10; commemorative, \$9.55.

**Metro tickets:** Passes, books and single tickets available.

**Movie discounts:** General Cinema, \$4.75; AMC Theater, \$4; Loew's Theater, \$4.75.

**Stamps:** Book of 20, \$5.80

**Upcoming Events:** Halloween Dance & Children's Halloween Party, Oct. 29; Travel Fair, Nov. 1.

**JSC history:** *Suddenly, Tomorrow Came: A History of the Johnson Space Center*, \$11.

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# Gilruth Center News

All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

**EAA badges:** Dependents and spouses may apply for photo identification badges from 7 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23 years old.

**Weight safety:** Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. Oct. 6 and 19. Pre-registration is required. Cost is \$5.

**Defensive driving:** Course is offered from 8:15 a.m.-3 p.m. Saturday. Next class is Oct. 15. Cost is \$19.

**Aerobics:** High/low-impact class meets from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

**Exercise:** Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

**Aikido:** Martial arts class meets from 5-7p.m. Tuesdays and Wednesdays. Cost is \$25 per month. New classes begin the first of each month.

**Intercenter run:** The month-long competition between NASA centers runs Oct. 1-31. Walk or run 2 miles or 10k. For additional information, contact the Gilruth Center at x33345.

**Volleyball clinic:** Eight-week women's volleyball clinic begins Oct. 1. Classes are from 2-4 p.m. Saturdays. Cost is \$25. For additional information, contact the Gilruth Center at x33345.

**Country dancing:** Beginners class meets from 7-9 p.m.; advanced class meets from 8:30-10 p.m. Partners are required. For additional information, contact the Gilruth Center at x33345.

**Golf Lessons:** Lessons for all levels. Cost is \$90 for six weeks. For information, contact x33345.

**Sailing Club:** Intermediate sailing classes will be held Oct. 15. For additional information, contact Richard Hoover at x31360, or 996-7716.

**Tennis:** Anyone interested in participating in a Fall Tennis League should contact the Gilruth Center staff at x33345.

**Fitness program:** Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry Wier at x30301.

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# Dates & Data

## Today

**Cafeteria menu** — Special: tuna noodle casserole. Total Health: steamed salmon steak. Entrees: steamed salmon steak, roast beef, baked chicken, steamed fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: French cut green beans, cauliflower with cheese, green peas, black-eyed peas.

## Monday

**Cafeteria menu** — Special: breaded cutlet. Total Health: crispy baked chicken. Entrees: baked chicken, beef chop suey, smoked sausage and German potato salad, French dip sandwich. Soup: cream of broccoli. Vegetables: okra and tomatoes, peas, navy beans, baby carrots.

## Tuesday

**Cafeteria menu** — Special: fried chicken. Total Health: vegetable lasagna. Entrees: Salisbury steak, steamed pollock, vegetable lasagna, French dip sandwich. Soup: split pea and ham. Vegetables: mixed vegetables, French cut green beans, pinto beans, vegetable sticks.

## Wednesday

**Astronomy seminar** — The JSC Astronomy Seminar will meet at noon Oct. 5 in Bldg. 31, Rm. 129. A brown-bag session on the 20th anniversary meeting of the seminar will feature part 2 of a videotape of Karl Henize on Mt. Everest. For more information, call Al Jackson at 333-7679.

**Toastmasters meet** — The Spaceland Toastmasters meets at 7 a.m. Oct. 5 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Darrell Boyd, x36803.

**Cafeteria menu** — Special: stuffed bell pepper. Total Health: stuffed bell pepper with creole sauce. Entrees: fried catfish with hush puppies, stir-fry chicken and rice, wieners and beans, Reuben sandwich. Soup: seafood gumbo. Vegetables: buttered rice, Italian green beans, corn O'Brien, peas and carrots.

## Thursday

**Cafeteria menu** — Special: barbecue smoked link. Total Health: roasted turkey breast. Entrees: turkey and dressing, beef stroganoff, chopped sirloin, French dip sandwich. Soup: tomato Florentine. Vegetables: lima beans, buttered squash, Spanish rice, oriental vegetables.

## Friday

**IMAX movie** — Space Center Houston will host special showings of "Destiny in Space" at 7, 8 & 9 p.m. Cost is \$5 for adults, \$4 for children age 3-11 years and adults over 65 years. For additional information, contact Space Center Houston, 244-2100.

**Cafeteria menu** — Special: meat sauce and spaghetti. Total Health: spaghetti noodles with turkey meat sauce. Entrees: rainbow trout, liver and onions, beef cannelloni, pork and shrimp egg roll, Reuben sandwich. Soup: seafood gumbo. Vegetables: steamed broccoli, breaded okra, cut corn, black-eyed peas.

## Oct. 10

**Columbus Day** — Most JSC offices will be closed in observance of the Columbus Day Holiday.

## Oct. 12

**PSI meets** — The Clear Lake/NASA Area chapter of Professional Secretaries International meets at

5:30 p.m. Oct. 12 at the Holiday Inn on NASA Road 1. For additional information, contact Elaine Kemp, x30556 or Diana Peterson, x33077.

**Toastmasters meet** — The Spaceland Toastmasters meets at 7 a.m. Oct. 12 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Darrell Boyd, x36803.

**Astronomy seminar** — The JSC Astronomy Seminar will meet at noon Oct. 12 in Bldg. 31, Rm. 129. Walter Kiefer of LPI will discuss the "Evolution of the Tharsis Region of Mars." For more information, call Al Jackson at 333-7679.

## Oct. 14

**SDD reunion** — The second annual reunion of former Spacecraft Design Division workers will be at 4:30 p.m. Oct. 14 at the Gilruth Center south pavilion. Cost is \$7. Reservations deadline is Oct. 7; call Sharon at x38960, Lori at x36600, Flo at x33738 or Ann at x36619.

**IMAX movie** — Space Center Houston will host special showings of "Destiny in Space" at 7, 8 & 9 p.m. Cost is \$5 for adults, \$4 for children age 3-11 years and adults over 65 years. For additional information, contact Space Center Houston, 244-2100.

## Oct. 19

**Astronomy seminar** — The JSC Astronomy Seminar will meet at noon Oct. 19 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call Al Jackson at 333-7679.

**Toastmasters meet** — The Spaceland Toastmasters meets at 7 a.m. Oct. 19 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Darrell Boyd, x36803.

# Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

## Property

**Sale/Lease:** Friendswood Sun Meadow 4-2.5-2A, 2300 sq ft, 1.5 story house on golf course, lg trees, new appliances, new carpet, \$108k. 282-3570 or 474-3820.

**Sale:** Tiki Island Bay House, 3-2-2, \$149k w/\$1500 floor allowance, negotiable. x36163 or 409-938-4755.

**Sale:** Sterling Knoll, 3-2-2, approx 1300 sq ft, pool, FPL, \$69.9k. 486-9760.

**Rent:** Lake Travis cabin, priv boat dock, CA/H, fully equipped, accommodates 8, fall and winter, \$325/wk, \$90/day, 4-74-4922.

**Rent:** Breckenridge, CO, 4-3-loft, sleeps 12, panoramic views, \$150/night in summer. 303-482-9124.

**Sale:** Meadowgreen 3-2.5-2A, new paint in/out/wallpaper, FPL, lg backyard, new cost eff A/C, alarm, \$87k. 480-3986.

**Lease:** 2-story duplex TH, 2-2.5-1, 1500 sq ft, near NASA 1, FPL, huge master BR w/balcony, deep closet, fenced patio, garage plus cov 2nd car parking. 452-3361.

**Rent:** Santa Fe, RV lot, \$135/mo, water, garbage included. 409-925-2330.

**Rent:** LC 2-2 mobile home, \$385 + \$300 dep. 409-925-2330.

**Rent:** Galveston condo, furnished, sleeps 6, wknd/wkly/dly rates. Magdi Yassa. 333-4760 or 486-0788.

## Cars & Trucks

'78 Mercury Marquis 4 dr, auto, good running cond, no rust, dependable, \$750 nego. John, x38988 or 482-6364.

'92 Trooper, ex cond, 25k mi, under warranty, \$17.5k. Dan, x47669 or 332-7695.

'79 280ZX 5-spd, A/C, ex cond, 108k mi, \$3,250 OBO. Michael, x37371 or 480-3329.

'80 Nissan 280ZX, runs good, new A/C compressor, recently replaced fuel injectors and rear brakes, \$1850. Joe, 212-1417.

'85 Volvo 760 GLE Turbo, ex cond, \$4500 OBO. x48954 or 335-1856.

'87 Nissan Pulsar, red, 5 spd, T-tops, A/C, cruise, bra, new brakes/battery, \$4k OBO. Chris, x33500 or 480-9329.

'84 Mercury Cougar, V-8, 120k mi, AM/FM/cass, cold A/C, needs paint, \$1,600. 282-3570 or 474-3820.

'70 Datsun 2000 Roadster, bright yellow, restored, ex cond, recent upgrades, garaged, \$3.9k. John, x46265 or 326-4216.

'90 Honda Prelude Si, red, warranty, sunroof, tape, 5-spd, A/C, \$8,990. x31384 or 487-2383.

'88 Mustang LX, 4 cyl, auto, A/C, tint, maroon w/red int, hatch, \$3,900. x31384 or 487-2383.

'93 Plymouth Voyager Sports Van, loaded, 15.4k mi, under warranty, tinted windows, 25k mi. Betty, 479-1393.

'89 Nissan Maxima GXE, loaded, keyless entry, sunroof, all pwr, Bose sound sys, 37k mi, ex cond. \$10.5k. 280-7406 or 488-8409.

'88 Buick Park Avenue, immaculate, 80k mi, loaded, \$5.5k. x35755.

'92 Chevy Z71 PU, 4WD, loaded, ex cond. \$16.5k. 338-6513.

'86 Toyota Corolla GTS, ex cond, runs great, A/C, PS, new tires, car phone, 30+ mpg, maint records. Bill, 938-1655.

'85 Porsche 5-spd, sunroof, A/C, AM/FM/cass, ex cond, \$5k. x35180 or 326-3706.

'90 Ford Tempo 4 dr, 47k mi, real clean, runs good, \$3995. 409-925-5461.

'90 Chevy Lumina 4 dr, loaded, high miles, runs great, \$3995. 409-925-5461.

'83 Pontiac J2000, new clutch/starter/brakes, 7k mi on tires, 127k mi, \$800. Nancy, x38275 or 480-4634.

'87 Audi GT Coupe, 5 spd, 60k mi, no dents, digital dashboard/computer, \$4,290. 480-3986.

## Boats & Planes

Mistral windsurfer w/2 sails, \$150. 334-6867.

'94 Seadoo XP w/cover, hvy duty trlr, vest, access, \$6.2k OBO. 333-6610 or 333-0404.

Sunfish sailboat w/trlr, \$250. x30737.

Windsurfer board, sail, all necessary parts, beginner board, \$250. x30737.

Lido-14 sailboat, sloop w/sails and trlr, \$2900. R. Hoover, x31360 or 996-7716.

'82 Toronado Catamaran, fiberglass, three mains, beach wheels, custom tilt trlr, \$4,500. 333-6246 or 480-3986.

## Cycles

Woman's bicycle, 10-spd, new, standard handlebar, Murray street cycle, \$75. 486-1727 or 282-4558.

Jamis Cruiser "Beach Bike," smooth rider, one spd, lg frame, ex cond, new jell seat, lock, \$130 OBO. x37549 or 488-2384.

Men's Raleigh RT-500, Shimano 105 components, ex cond, used twice, \$500. John, 266-6468.

Free Spirit 12-spd bike, \$40; boy's Huffy, 16", \$30; boy's Free Spirit, 16", \$30. Fran, x40203.

## Audiovisual & Computers

HP Laserjet compatible, 6 ppm, 1.5MB, 31 resident fonts, 4 scalable fonts; Postscript printer, 6 ppm, 3.0MB, 35 resident fonts, parallel, serial and Appletalk interface, \$650/both. Victor or Henry, 488-1364.

AST 486 SX/25, 4MB RAM, 170MB HD, 33.5" FD, internal modem, SVGA card & monitor, kybd, mouse, Windows, Works, Prodigy, Quicken, \$750; 386DX/16, 2/40MB, 5.25" FD, modem, CGA card & monitor, \$350; SVGA monitor, \$180. Kelley, x36818 or 488-8194.

Audio-Technica ATW-1031 wireless microphone system, headset microphone attachment for vocals or special attachment for guitar, \$425. 998-1475.

Magnavox 1 disc CD player w/remote and all cables, ex cond, \$50. Elizabeth, x49656.

Hewlett Packard HP12C financial calculator, \$55; Sharp portable electronic typewriter, \$70. 482-8827.

IBM 286, 2 FD, 30MB HD, color monitor, \$175; PC-XT, 2 FD, 20MB HD, mono monitor, \$100. x35549 or 554-7104.

Commodore 64, color monitor, printer, modem, S/W, \$100 OBO. 644-0315.

Clarion 4670 cassette deck, pull-out, 12WRMS x 4 ch, 2 sets pre-amp outputs, dual illumination, Dolby B NR, music search, 1 yr old, \$175 OBO. Pete, x31457 or 488-5705.

## Photographic

Bronica S2A medium format, 6x6, SLR camera, 50mm, 75mm, 135mm Nikkor lens, acc, \$975. Kevin, 333-3705 or 538-3141.

## Musical Instruments

Yamaha 460-S, 12 string guitar w/case, like new, \$475. Kevin, 333-3705 or 538-3141.

Yamaha alto saxophone, \$400; Yamaha closed-hole flute, \$200; inspected and approved for school. Linda, x36246 or 559-1491.

## Pets & Livestock

AKC Dalmations, 6 wks, shots, \$200 nego. 922-1425.

## Lost & Found

Pair of brown plastic frame eye glasses found outside Bldg 5. x32720.

## Household

Matching coffee and end tables, \$60/pr; student desk, \$50; twin dining room chairs, beige cushions, \$30/pr, all medium brown finish. Kari, x38649.

Recliner, \$35; 2 wicker étagères, \$25 ea; wooden rocker, \$35; bookcase, \$30; 2 stereos, \$25 ea; nite stand, \$10; lamp, \$5. Ray, x53954 or 487-4889.

Solid wood BR set, \$700; oval mirror on stand, \$50; cedar chest, \$150; antique brass floor lamp, \$20; Kenmore side by side, 25 cu ft, refrigerator/freezer, gold, \$350; lt brown corduroy sofa, \$200; mahogany curio cabinet, \$200; earth tone lined drapes, \$25/set; gas pwr push lawn mower, 3.5 hp, \$60; misc yard chemicals. 486-2414.

Full sz sofa, excellent quality, good cond, off white w/pastels, \$200; Bell Tourstar motorcycle helmet, new, \$100. Bill, 938-1655.

Persian rug, Goochan design, 9'x5', rich burgundy, \$800, orig \$1895, never used; cobalt blue lead crystal fruitbowl & pitcher, \$200; Yamaha flute music stand & metronome, app for CL, all OBO. x37549 or 488-2384.

Crib w/dbl mattress, converts to toddler & youth bed, \$85. 474-5976.

Baby crib & mattress, \$150. Jeff, 333-7062.

China cabinet/buffet, like new, was \$900, now \$600; area rug, 12 x 16, \$500; armoire/entertainment center, cherry wood, was \$900, now \$500. 474-9325 or 741-2273 ext 7241.

Kg sz dark pine Ethan Allan cannonball bed, \$600. Carol, x35124.

Desk, white, 65"x30", credenza and 3-drawer file cabinet, \$100. x39588 or 487-1883.

Scandinavian teak BR set, 2 bunk beds; 2 dressers; unit which holds 2 cabinets; 2 magazine shelves, 4 bookshelves; ladder, teak trimmed mirror, \$375; twin day bed, \$150; twin mattress, \$75; stereo cassette deck, \$50; stereo speakers, \$50; Craftsman table saw w/stand, \$60. 488-2841.

Maple colored crib and dresser set, \$250. 333-6573 or 334-5843.

Rocker/recliner, olive color, vinyl, good cond, \$30. Joe, x41096 or 326-5184.

Sears washer, \$50; Sears electric dryer, \$50; Sears 19.6 cu ft refrigerator freezer, \$100. x30044 or 996-0981.

Trundle bed w/mattress, \$200; rollaway bed w/mattress, \$80; sm table type desk w/side drawer, \$35. x30446 or 338-2625.

## Wanted

Want personnel to join VPSI vanpool, West Loop Park & Ride lot at 6:50 am to NASA/contractors. Richard Heetderks, x37557 or Ed Rangel, x36124.

Want non-smoking roommate to share 3-2-2 LC house, \$250/mo or \$325 for private bath + 1/2 util. Rob, x41027 or 538-1449.

Want housemates to share 4 BR w/pool, male of female. 286-7227.

Want female volleyball player to sub for six weeks on a Wednesday night women's volleyball team at Gilruth, Christie, 282-8620.

Want inclosed trailer similar to horse or U-haul, min sz 4 ft by 8 ft. Bob, x30825 or 998-7372.

Want someone to carpool with at least 3 days a week from 290-610 area to Ellington, 7:30 am to 4:15 pm. x49738.

Want NASA publication SP-480 "Far Travelers" or any SP publication. Ron, 333-6952 or 482-1385.

Want motorcycle, sm dirt bike under

100cc, Honda XR-75 or similar. 332-9105.

## Miscellaneous

Suitcase style hanging bag, lt blue, good cond, \$25; Sears exercise bike, 5 yrs old, good cond, \$50. Kari, x38649.

Nine day vacation package to the Bahamas and Florida, incl hotel and cruise, must complete travel by 3/95, \$398. Elizabeth, x49656.

Two steel rims for Toyota 4 wheel drive PU, \$100. 644-0315.

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# Global Implications

## STS-64 crew studies Earth, space environment for future

**G**lobal implications rode alongside the payloads of STS-64. From its Earth environmental studies using the Lidar in Space Technology Experiments to its space environmental studies using the Shuttle Plume Impingement Flight Experiment, the flight looked toward a future that includes the monitoring of our home planet and the construction of an International Space Station.

Over nearly 11 days, Commander Dick Richards, Pilot Blaine Hammond and Mission Specialists Susan Helms, Mark Lee, Jerry Linenger and Carl Meade performed a myriad of tests that were captured on film. Left to right, top to bottom:

- 1) Suspended against the blue and white of Earth 130 nautical miles below, Lee tests the new Simplified Aid for EVA Rescue system.
- 2) The STS-64 crew portrait shows, from left, Linenger, Lee, Hammond, Helms, Meade and Richards.
- 3) On *Discovery's* aft flight deck, Helms handles controls for the remote manipulator system. The robot arm was called into play for a number of tasks, including release

and retrieval of the free-flying Shuttle Pointed Autonomous Tool for Astronomy, the a series of Shuttle Plume Impingement Flight Experiment measurements and the six-hour space walk.

4) On the middeck, Meade checks a hose associated with SAFER prior to his Sept. 16 space walk.

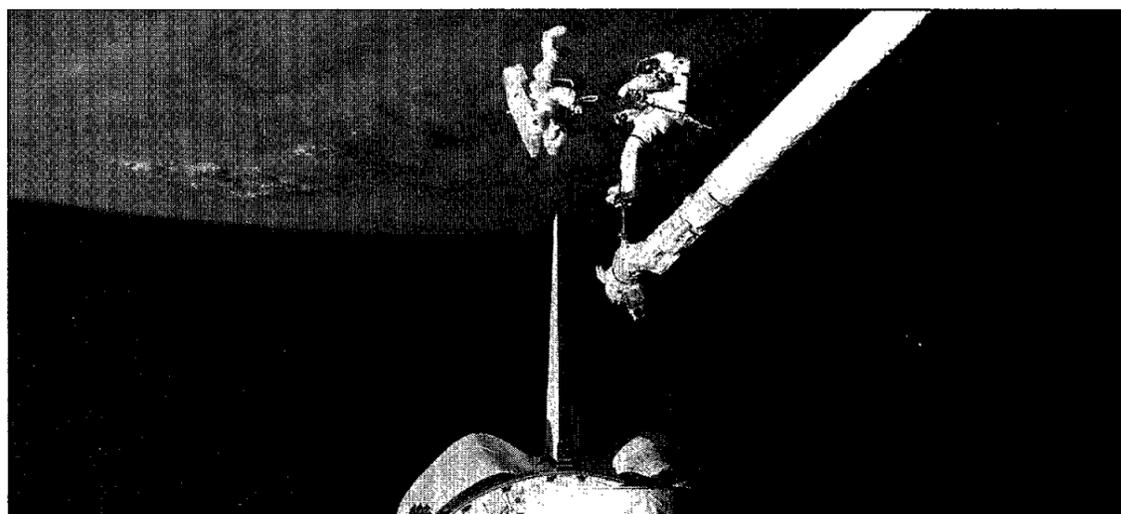
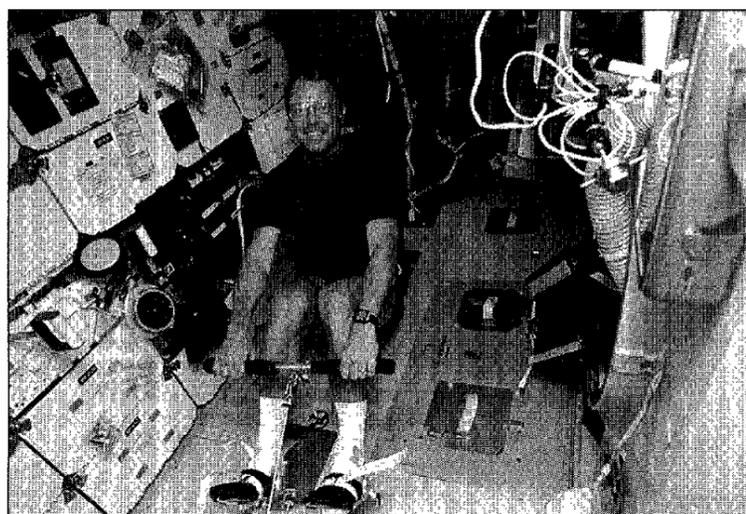
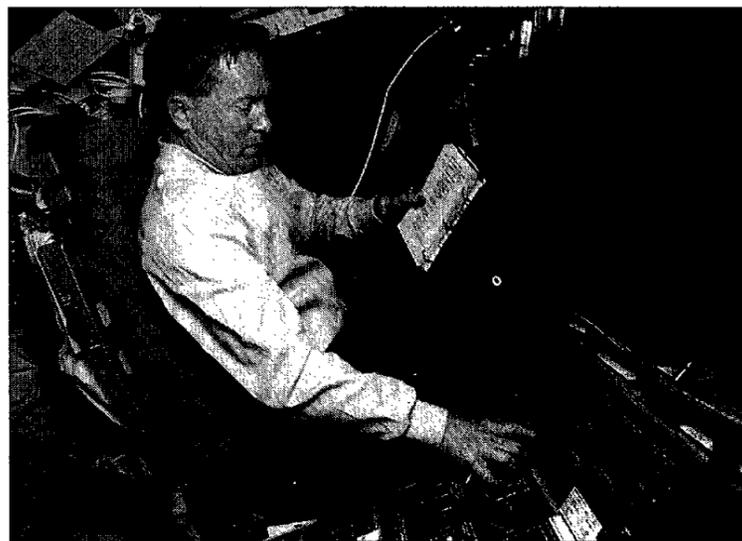
5) Lee talks to flight controllers about SPIFEX operations while working at a laptop support computer.

6) Linenger uses the Shuttle Amateur Radio Experiment to communicate with students on Earth.

7) Richards initiates a thruster firing during operations with SPIFEX, a 32-foot boom attached to the robot arm that was used to measure the forces imparted by the shuttle's steering jets.

8) Hammond gets some microgravity exercise on a microgravity rowing machine. *Discovery's* crew members compared the exercise device's effectiveness to that of a treadmill that also was flown

9) Meade floats free above *Discovery's* payload bay as Lee, attached to a foot restraint on the end of the robot arm, helps him test the maneuverability of the SAFER system. □



# Small Explorer mission to study Sun, galactic evolution

Two new science missions to study the Sun and the evolution of galaxies will be launched aboard small, relatively inexpensive spacecraft near the end of the decade, according to Dr. Wesley T. Huntress, NASA associate administrator for space science.

The first of the newly selected missions, the Transitional Region and Coronal Explorer, or TRACE, will observe the Sun to study the connection between its magnetic fields and the heating of the Sun's corona.

Dr. Alan Title of the Lockheed Palo Alto Research Laboratory, Calif., is the principal investigator. His team will include 13 other scien-

tists from the United States, Sweden, the United Kingdom and the Netherlands. TRACE is scheduled for launch in 1997.

The second spacecraft, the Wide-Field Infrared Explorer, or WIRE, is scheduled for launch in 1998 on a mission to study the evolution of galaxies. WIRE will use a cryogenically cooled telescope and arrays of highly sensitive infrared detectors for the studies.

WIRE was proposed by Dr. Perry B. Hacking of NASA's Jet Propulsion Laboratory, with co-investigators from the California Institute of Technology, Cornell University, Ball Aerospace Systems Group, and JPL.

The two newly announced missions are part of NASA's Small Explorer Program, which provides frequent flight opportunities for highly focused and relatively inexpensive science missions. Small Explorer spacecraft weigh approximately 500 pounds (227 kilograms). Each mission is expected to cost approximately \$50 million for design, development and operations through the first 30 days in orbit.

The missions will be launched by Pegasus, an expendable launch vehicle owned and operated by Orbital Sciences Corp., Loudon, Va., under contract to NASA. The TRACE and WIRE missions join three other Small Explorer missions

already in development or operation.

The Solar, Anomalous and Magnetospheric Particle Explorer, was launched July 3, 1992, and has been successfully investigating the composition of local interstellar matter and solar material, and the transport of charged particles into the Earth's atmosphere.

The Submillimeter Wave Astronomy Satellite is scheduled for launch in June 1995 from an L-1011 at NASA Goddard Space Flight Center's Wallops Flight Facility in Virginia. SWAS will for the first time directly measure the amount of water and molecular oxygen in interstellar clouds. SWAS also will mea-

sure carbon monoxide and atomic carbon, which are believed to be major reservoirs of carbon in these clouds.

FAST, the Fast Auroral Snapshot Explorer, is scheduled for launch one month after SWAS, in July 1995, from Vandenberg Air Force Base in Lompoc, Calif. FAST will probe the physical processes that produce aurorae, the displays of light that appear in the upper atmosphere at high latitudes.

Mission definition, development and launch of the Small Explorer Program are managed by the Small Explorer Project Office, Goddard Space Flight Center for NASA's Office of Space Science.

## New facility managers eye building safety

(Continued from page 1)

- Serve as the single point of contact for notification, 24 hours a day, 7 days a week (alternates may be designated);

- Maintain safety information, instructions and evacuation route postings;

- Ensure that all building and facility activities comply with applicable safety and environmental policies and regulations;

- Serve as the single point for contact for safety-related building tests, construction, modification or maintenance;

- Perform periodic safety inspections and ensure that appropriate corrective actions are taken;

- Ensure that security measures are enforced for critical and limited access facilities;

- Participate in planning of simulations related to safety and evacuation scenarios;

- Review requirements, processes or procedures that may affect operations with the building from a safety perspective;

- Maintain a log of hazardous materials in each lab or facility with the building, as well as a schedule of critical or hazardous activities;

- Assure that the facility action plan is being followed during emergencies until an on-scene commander arrives; and

- Assure that test and hazardous operations personnel have received appropriate training.

A training program is being developed for the facility managers, who will receive their training within the next 60 days.

"I encourage everyone to cooperate fully with our facility managers," Huntress wrote. "With our support, they will play an important role in making JSC a safer place to work for all of us."



JSC Photo by Mark Sowa

**GOOD RELATIONS**—JSC Director Dr. Carolyn Huntoon honors American Federation of Government Employees with union leadership awards during a ceremony last week. The awards recognized their help in improving many personnel policies and practices, and promoting partnership and a constructive labor-management environment. Seated from left are AFGE Local 2284 President Mary McLain, Bridget Broussard-Guidry, Linda Salinas and Jo Ann Brichett. Standing, from left, are Harvey Kelly, John Zieglschmid, Thomas Hall, Huntoon and Raul Mejia.

## MFA honorees see STS-64 launch

More than 30 JSC civil service and contractor employees watched the Sept. 9 launch of STS-64 at Kennedy Space Center as recipients of the Manned Flight Awareness Award.

The honorees also received a VIP tour of KSC and attended a reception held to recognize their dedication to quality work. Astronaut Andy Thomas presented all the honorees with framed certificates and pins.

Civil service honorees were: Lupita Armendariz, Equal Opportunity Programs; David Baker, White Sands Test Facility; David Black and Melanie Miller, Mission Operations; Larry Bowden and Son Nguyen, Flight Crew Operations; Marianne Campbell, Information Systems; Marge Davis and Bill Wood, Center Opera-

tions; Frank Goldston, Space Station; Anh Huynh and John McManamen, Engineering; Bob Jenkins, Safety, Reliability and Quality Assurance; Scott McClay, Orbiter Projects;

Mary Petrovics, Life Sciences; Shirley Randolph, Comptroller; and Cathy Unger, Business Management.

Contractor honorees were: Charlie Bautsch, Hernandez Engineering; Matt Borck, SAIC; Glenn Bunch, Brown & Root;

Cheryle Buschelman, KRUG; Bill Higgins, Hamilton Standard; Jeff Hoblit, LinCom; Tracy Hom, GHG; Jerry Oliver and Mike Peel, Loral; Rickie Rieck, Johnson Controls; Mike Slataper, Ebasco; Hans Toews, Moog; Bob Villarreal, Lockheed; and Susan Widmer, MRI.



## JSC gets cans in gear for new aluminum recycling program

JSC employees are doing their part to help crush the wasting of Earth's finite resources by taking advantage of an on-site aluminum can recycling program that began March 1.

"Since JSC began recycling aluminum cans in March, employees have deposited over 3,000 pounds of aluminum in the recycling recepta-

cles," said Trudy Papler, project coordinator for Center Operations' Environmental Services Branch. "Thanks to all employees who have deposited aluminum, the Employees Activities Association has received over \$500."

Beginning this month, the collection process has changed slightly, Papler said. Employees will still

deposit cans in the receptacles located on most floors of Bldgs. 1, 4, 16, 30, 45 and the Gilruth Center, and the custodial contractor will still remove the cans from these receptacles. Custodians will place the plastic bags full of cans on the loading docks of some buildings for pick-up by the food service contractor, Canteen. Canteen will move the cans to

an on-site trailer.

Some of these cans have been removed by other than Canteen personnel. JSC employees are asked to leave the cans on the loading docks. Future plans to expand recycling will include buildings not currently in the program.

The Employee Activities Association expressed its thanks to all

employees who have participated in the aluminum can recycling program and asked that all employees continue participating in this voluntary program to conserve our country's resources and promote recycling.

Any questions or comments about the program can be directed to Teresa Sullivan at x38970 or Trudy Papler at x33117.

## STS-64 crew praises ground team work

*Lee felt 'like some Leprechaun granted me three wishes'*

(Continued from page 1)

weather in Florida—but that he was glad to be home.

"There comes a time when all the work is done, the wet trash is bulging at the seams, and more importantly in Mark and my case when the shrimp cocktail is gone you know its time to come home," he said.

Hammond said his second space flight was even more exhilarating than the first due to the space walk by Lee and Mission Specialist Carl Meade. "Watching Mark and Carl out there on the EVA took the experience to a new level."

Mission Specialist Susan Helms

echoed his remarks, recounting the breadth of the research conducted during the flight and inviting co-workers to yesterday's briefing in Teague Auditorium.

"We just had an absolutely fantastic time up there," she said. "The spacewalk is something you're just not going to believe when you see the pictures we took."

Mission Specialist Jerry Linenger, a member of the astronaut class of 1992, nicknamed "Pigs in Space," expressed thanks to his crew mates and the rest of the veteran astronauts on behalf of the whole class.

"I felt like I was really well pre-

pared," he said. "I want to express special thanks to all the astronaut crew, the veterans, who really showed us the ropes and taught us how to become space operators."

Mission Specialist Mark Lee said the entire flight went so smoothly that he felt "like some Leprechaun granted me three wishes with no strings attached."

"The real satisfaction in space flight for me," he said, "comes with getting the job done. We had a few problems here and there, but they were overcome by quick work by the mission control team and we accomplished all our objectives."

## Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Dates and Data submissions are due Wednesdays, eight working days before the desired date of publication.

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Associate Editor ..... Kari Fluegel  
Associate Editor ..... Eileen Hawley

## MAPS to measure carbon monoxide

(Continued from page 1)

Band Synthetic Aperture Radar, and the Measurement of Air Pollution from Satellite. The German Space Agency and the Italian Space Agency are providing the X-SAR instrument.

MAPS will measure the global distribution of carbon monoxide in the troposphere, or lower atmosphere. Measurements of carbon monoxide, an important element in several chemical cycles, provide scientists with indications of how well the atmosphere can cleanse itself of "greenhouse gases," that can increase temperatures.

An on time launch will result in a landing about 11 a.m. Oct. 10 at KSC.